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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/670,219 | 09/26/2003 | Naotaka Yumoto | 030712-14 | 6834 |

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| EXAMINER | |
|---|---|
| HUR, JUNG H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2824 | |

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 10/670,219 | YUMOTO, NAOTAKA |
| | Examiner | Art Unit |
| | Jung (John) Hur | 2824 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *6-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 21-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *search history*.

## DETAILED ACTION

### *Amendment*

1. Acknowledgment is made of applicant's Election and Amendment, filed 11 February 2005, in which Applicant elected Species I, drawn to Fig. 1, and identified claims 1-5 as being readable on the elected species. Further, claims 21-29 have been added. Therefore, claims 1-29 are pending in the application. Of these, claims 6-20 are withdrawn from further consideration as being drawn to non-elected inventions.

### *Specification*

2. Claims 21, 25, 27 and 29 are objected to because of the following informalities:

In claim 21, "&ray" appears to be in error; it will understood as --array--.

In claim 27, its dependency on claim 28 appears to be in error; said claim will be understood as being dependent on claim 26.

In claims 25 and 29, "a address buffer" should be --an address buffer--.

Appropriate corrections are required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-5, 21, 23-26, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art ("Admission") in view of McClure (U.S. Pat. No. 6,037,792).

Admission (for example, in the second paragraph on page 1) discloses a nonvolatile semiconductor memory device comprising: a memory cell array having plural memory cells and arranged in an array shape by connecting these memory cells to plural bit lines and word lines (inherent); plural address input terminals inputting addresses thereto (inherent); a test mode circuit for outputting a test mode signal (implied, for example, to control the selection of all word lines) when a signal ("a signal from the exterior") is inputted to a predetermined terminal (implied, since the signal is from the exterior); a row decoder connected to said test mode circuit (implied, since all word lines are selected for testing) and applying a voltage ("a test mode voltage") for a test to all said word lines in response to said test mode signal; a column decoder (including "column switches") connected to said test mode circuit and setting all said bit lines to a non-selecting state ("a turning-off state") in response to said test mode signal; a control signal input terminal for receiving a control signal (inherent; such as RAS, CAS, R/W, etc.) and a control circuit connected to this control signal input terminal (inherent, for example, to control read/write operations); and an address buffer connected to the address input terminals, the row decoder and the column decoder (inherent).

However, Admission does not disclose that the predetermined terminal is that among the address input terminals; and a monitor terminal (or pad) connected to said test mode circuit and outputting said test mode signal.

McClure, for example in Fig. 1, discloses outputting a test mode signal (for example, /BURN-IN MODE signal) when a signal is inputted to a predetermined terminal among the address input terminals (i.e., use of an address pin to control entry into the test mode; see, for example, column 5, lines 52-61). McClure further discloses a monitor terminal or pad (48 or 54) for outputting the test mode signal (via 52 and 50; see also column 3, lines 22-40 and column 5, lines 37-52).

Since it was common and well known in the art to detect a predetermined signal on an existing address pin to enable a test mode (as exemplified by McClure and others), it would have been obvious at the time the invention was made to a person having ordinary skill in the art to enable the test mode of Admission via a signal on a predetermined terminal among the address input terminals, for the purpose of reducing the need for additional pins to enable a test mode and thus reducing the space and cost associated with providing additional pins.

Further, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a test mode monitor terminal (or pad), as in McClure, in the test mode circuit of Admission, for the purpose of ascertaining a test mode entry and exit and thus reducing test errors and increasing test quality (see also for example McClure, column 5, lines 40-44).

5. Claims 2, 22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art ("Admission") in view of McClure (U.S. Pat. No. 6,037,792) as applied to claims 1, 21 and 26 above, and further in view of Fontana et al. (U.S. Pat. No. 5,982,677).

The above Admission/McClure combination disclose a memory device as in claims 1, 21 and 26 above, with the exception of a select line connected to the drain of a memory cell, and a regulator connected to this select line and said test mode circuit and giving a predetermined bias electric potential to the drain of said memory cell.

Fontana, for example in Figs. 2 and 3, discloses a select line (Yms) connected to the drain of a memory cell (see 3 in Fig. 2), and a regulator (Fig. 3) connected to this select line and a circuit (providing Vref and PGn), and giving a predetermined bias electric potential to the drain of said memory cell (see for example column 4, lines 26-37).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the drain voltage regulator, as in Fontana, in the device of the Admission/McClure combination, such that the regulator would be connected to the test mode circuit and provide a test voltage to the drains of the memory cells, for the purpose of stabilizing the test voltage and reducing the testing time, and thus improving the test efficiency (see for example Fontana, column 3, lines 37-46; also, column 7, lines 24-28).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Urai (U.S. Pat. No. 4,855,956) discloses an address signal used to initiate a test mode.

Camerlenghi et al. (U.S. Pat. No. 5,576,990) discloses a drain voltage regulator.

Hii et al. (U.S. Pat. No. 5,936,900) discloses externally monitoring internal self test signals through a data buffer.

Yamasaki et al. (U.S. Pat. No. 6,339,357) discloses a pad to externally monitor internal voltages in a test mode.

Roohparvar (U.S. Pat. No. RE37,611) discloses an address pad used to detect test mode enable.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung (John) Hur whose telephone number is (571) 272-1870. The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jhh

VAN THU NGUYEN
PRIMARY EXAMINER